FOREST PEST MANAGEMENT
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THE HOG FIRE OF 1977 ON THE KLAMATH NATIONAL FOREST: BIOLOGICAL EVALUATION OF DECLINING SCORCHED TREES IN 1981

PSW FOREST AND RANGE EXPERIMENT STATION
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John Pierce, Entomologist

ABSTRACT

Apparently, detrimental effects of fire injury are still developing on Douglas-fir in the area of the Hog Fire of 1977. Many scorched trees are now chlorotic, and some are infested and killed by the flatheaded fir borer, Melanophila drummondi. Long-term survival of scorched trees is uncertain. Fifty chlorotic trees were marked to monitor further decline or possible recovery. Fire injury and other negative stand conditions indicate that tree mortality on the Salmon River Ranger District will continue at above-normal levels. Some stands should receive no additional treatment, some stands should be harvested and regenerated, and some stands should have salvage only removed. Innovative decisions are needed to best manage the timber resources of the District.

INTRODUCTION

A detection report and request for a field evaluation were received from Barrie Freeman with a cover letter from Ranger Coonce, dated February 20, 1981. Freeman and Coonce were concerned about the potential loss of 10 MMBF of Douglas-fir timber on 7000 acres surrounding the Hog Burn. The flatheaded fir borer and possibly the Douglas-fir beetle were identified as threats in the area.

The requested field evaluation was made on March 31 and April 1, 1981, when entomologist John Pierce visited the area with Barrie Freeman and his assistant.

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OBSERVATIONS

After checking numerous trees, it was established between Freeman and Pierce that the trees which are of concern are 1) Douglas-fir, 2) scorched by the Hog Fire of 1977, and 3) chlorotic - slightly to conspicuously off color. As suspected, a considerable number of these scorched, chlorotic Douglas-fir were found to be infested by the flatheaded fir borer, Melanophila drummondi. None were found to contain the Douglas-fir beetle, however. The trees dying with flatheaded fir borer infestations are identifiable at this time of year by characteristic woodpecker activity and the presence of doubled-over larvae and pupae in the bark. Barrie Freeman and his assistant became proficient at recognizing these infested trees.

A much larger portion of the scorched, chlorotic trees cannot be shown to be infested by any pest at this time. These trees are in a struggle to recover from the effects of the fire and as time goes by, more and more trees will lose the battle. At this time, however, we can not predict with any confidence which trees will survive and which ones will succumb over the next 5 or 10 years.

DISCUSSION

A few years before the Hog Fire, the Douglas-fir stands on the District suffered a large episode of tree mortality which was probably related to weather events. Now, continuing tree mortality follows stresses left by fire damage. Severe site and decadent forest conditions suggest that high levels of tree mortality will probably continue on the District into the future.

The large area and number of trees involved indicate that a serious effort is warranted to understand and solve the problems of deteriorating stands on the Salmon River District. Probably the greatest help will be from foresters accumulating experience in the area. To help in aquiring some experience concerning one of the problems - the fate of chlorotic, scorched trees - 50 of these trees were marked in several locations so that their survival can more easily be followed. Additional marking of this kind might be helpful to increase the sample size. These trees will be monitored by the District to obtain guidance for salvage decisions.

MANAGEMENT ALTERNATIVES

1. Do nothing. A great volume of fire killed timber from the Hog Fire has already been salvaged and additional sale areas are being scheduled 4 years after the fire. What this evaluation is discussing is, what to do about dead and dying timber beyond that recognized and removed as fire salvage. Additional volume dying after salvage has been completed in a particular area might not be significant, and to do nothing in addition to fire salvage might be appropriate. Of course, what is likely to happen

with no action is that some timber will be wasted, some sites lost to competing vegetation, and the buildup of flatheaded fir borer in weakened trees may continue.

2. Harvest and regenerate over-age Douglas-fir and reforest destroyed stands. The regular timber management program ostensibly is accomplishing as much "proper" management as it can. Avoiding excessive or accelerated tree mortality with proper protection and silvicultural practices is, of course, one hoped for result of compartment analysis, silvicultural prescriptions, land use planning, etc.. However, it is obvious that many decades of work are needed before the managed forest is obtained.

3. Specialize in salvage. From this and previous experience on the Salmon River District, it appears to us that tree mortality and the need for salvage will be a continuing problem. The supply and demand for salvage from the District will fluctuate, but the aggregate supply will remain large as waves of tree mortality follow fire, storm, drought, etc. The salvage might be viewed more as a continuous rather than an emergency or auxiliary activity. Constructive planning and imaginative promotion of salvage with Special Salvage Timber Sales and the Salvage Sale Fund could probably finance and sustain a higher level and longer term salvage effort. However, the salvage would have to remain a very flexible program because it is not possible to know far in advance exactly where or in what quantities dead and dying trees are going to appear. Since most tree mortality seems to take place in Douglas-fir with flatheaded fir borer infestation, more prompt and complete removal of beetle-infested timber, while the beetles are still in the trees, might reduce eventual losses. A very active, flexible salvage program must also recognize when tree mortality exceeds that which salvage can properly cope with and scheduling for harvest and regeneration is appropriate.

Finding the best possible mixture of doing nothing, salvaging, and intensifing management from place to place and under changing circumstances, is the challenge facing the District. The Forest Pest Management Staff is available to assist in formulating the innovative decisions needed.